



**Town of Starks**  
57 Anson Road  
Starks, ME 04911

207.696.8069(o)  
207.696.8201(f)  
townofstarks@gmail.com

**OFFICE OF THE SELECTMEN**

April 5, 2016

Division of Purchases  
Burton M. Cross Building  
111 Sewall St., 4<sup>th</sup> Floor

RE: Project No. 201601017- 2016 Grants for Stream Crossing Public Infrastructure Improvements

Dear Friends,

The Town of Starks is pleased to submit this proposal for Stream Crossing Public Infrastructure Improvement funds to address a long-standing and critical need to address ongoing failure of two culverts on the Sawyers' Mill Road, a significant local collector that connects the Village of Starks and State Route 43 with State Route 148 between Anson and Farmington.

The culverts the Town would like to replace using these funds do not have adequate capacity during even annual flood events resulting in flooding of the road making it, for sometimes extended periods, impassible to local traffic including emergency vehicles and school buses. Further, the stream has been identified as important habitat by the Maine IF&W for all life stages of wild Brook Trout and other aquatic organisms (See attached letter of Robert Van Riper). The culverts, which discharge 2 to 3 feet vertically into a plunge pool, are impassable for upstream passage of any aquatic life including wild brook trout. Washouts distribute road gravel and sediment into the stream and have even created an additional stream-like channel.

The attached proposal demonstrates that this project meets all of the grant criteria. The culvert replacement will:

- improve water quality by eliminating erosion and sedimentation into the stream from road washouts;
- greatly improve habitat for aquatic life, including all life stages of wild brook trout;
- improve public safety associated with flooding by allowing safe passage of local traffic, emergency vehicles and school buses during heavy periods of rainfall and snowmelt;
- is increasingly necessary with more violent storm events associated with climate change.

Additionally, adequate replacement of these culverts will improve efficiencies and reduce the cost of road maintenance in this area – tons of gravel have washed downstream over the years.

The project design has been developed with assistance from the Maine IFW, Somerset County Conservation District, and Dirigo Timberlands, who has expertise in construction and installation of the companies' concrete culverts, arches and bridges. A Maine DEP official has also visited the site to provide assistance and inform the town that a permit by rule will be required.

Additional engineering and design work will be accomplished. US Fish and Wildlife Service staff have agreed to provide input, as well as Robert Van Riper, a Maine IF & W fisheries biologist, and Somerset County Conservation District personnel.

The Town is requesting a grant amount of \$45,000. The total cost of the project is \$62,350, with the town providing an in kind match of \$17,350. \$5,000 has been set-aside for engineering (under 8% of the grant award). This proposal contains a very cost-effective approach to the project using Town equipment and an experienced road foreman and crew, local sources of materials. Other equipment including an excavator large enough to do the project, and a bulldozer, water pump, compactors, will be rented. Gravel and rock will be purchased commercially. The project will be overseen by Calderwood Engineering as well as by Joseph Hayden a Selectman who is experienced in earthwork and equipment matters, and with ongoing consultations with fisheries biologists.

This proposal and the pricing contained herein is valid and binding for a period of 180 days from the date and time of the grant opening.

Sincerely,

A handwritten signature in cursive script that reads "Paul Frederic".

Paul Frederic,  
First Selectman  
Town of Starks  
57 Anson Road  
Starks, Maine 04911

## APPENDIX 1

NOTE: Please refer to the full RFP instructions before completing this application. Specific details and explanations are included on pages 7 thru 9 of the application.

<b>Maine Department of Environmental Protection</b> <b>Request for Proposals for Stream Crossing Public Infrastructure Improvement Projects</b> <b>Proposal Application Form - 2016</b> <b>RFP# 201601017</b>			
<b>I. Applicant Information</b>			
Applicant Name			
Town of Starks			
Address	Town	State	Zip
57 Anson Road	Starks	Maine	04911
Applicant Phone #	Applicant Email Address		
207.696.8069o 207.399.8699c	townofstarks@gmail.com		
<b>II. Agent/Consultant Information, if applicable</b>			
Agent Name			
Ernest W. Hilton, Esq., P.E.			
Agent Mailing Address	City	State	Zip
P.O. Box 162	Madison	Maine	04950
Agent Phone #	Agent Email Address		
207.696.3800o 207.399.8699c	ewhilton@myfairpoint.net		
<b>III. Culvert/Stream Crossing Location (please attach a map(s) of the project location and a photo of the existing culvert/crossing to this application as described in Section IV):</b>			
Municipality or Unorganized territory where project will take place:	GPS Location in Digital Format:		
Starks--- Somerset County	44.765083_ - 69.993171_ (Available on google maps by clicking the location on the map)		
Culvert/crossing location. Name of the road on which the culvert/crossing is located and distances to the nearest road intersections.			
Culvert is on the Sawyers Mills Road approximately 0.5 miles east from Rt.148 in Industry, and 100 yards west of the Mt. Hunger Road – Mt. Hunger Road is a local discontinued road. Sawyers Mills Road is a major local connector between Starks Village and State Route 148.			
Watershed Location: List the name of the stream, brook, or the water body the culvert is located on, and the downstream, brooks streams, rivers, lakes, ponds, bays, etc.			
Unnamed feeder stream to Lemon Stream which is 200 yards away. Lemon Stream is a major tributary to the Sandy River.			
Required Maps and Photos: Include the following photos and maps (in color if possible).			
X <input type="checkbox"/> Map marking culvert/crossing location and showing road names.			
X <input type="checkbox"/> Map showing satellite view with culvert/crossing location marked.			
X <input type="checkbox"/> Optional - Map showing culvert/crossing location on Maine Stream Habitat Viewer.			
Note – All photos should be <u>dated</u> .			
X <input type="checkbox"/> Photo(s) showing condition of culvert/crossing.			
X <input type="checkbox"/> Photo(s) showing downstream side of culvert/crossing (including water level at end of culvert).			
X <input type="checkbox"/> Photo(s) showing inlet side of culvert/crossing (including water level at end of culvert/crossing).			
X <input type="checkbox"/> Photo(s) showing safety conditions such as sinkholes, collapsing structures, erosion undermining, etc.			
X <input type="checkbox"/> Photo(s) showing downstream erosion impacts, if any.			

**IV. Scoring Criteria for Public Infrastructure Information: (25 Points total):**

Has the culvert/crossing washed out, flooded, overtopped the road, or failed in the past 20 years due to storm events? If yes, please describe how often, and the approximate dates of culvert/crossing failure. (Include pictures if available.) **The two culverts, each 24" in diameter about 4 ft apart c to c at inlet and 8 ft c to c at outlet, fail on a regular basis due to storm events almost yearly due to lack of capacity and an awkward configuration, , then overtopping the roadway, flooding the road and washing gravel into the downstream ditches and into the stream. The road becomes impassable for lengthy periods as a result.**

What is the current condition of the culvert/crossing? **The stream comes into the ditch on the north side of the road, then is forced to turn perpendicularly to the right (west), travel 15 to 20 feet in the roadside ditch, then turn perpendicularly again to the left (south) and go through a pair of culverts. At the lower end of the culverts the discharge drops 2 to 3 feet into what has developed into a plunge pool. In the course of these turns, the water piles up and overtops the road. A microburst (pictured) in 2014 resulted in very severe washout and downstream scouring. Both culverts were installed at a time before the reach of any current memory, at least 30 years ago. Past remediation has consisted of replacing lost gravel with several truckloads of additional gravel, which has only served to exacerbate the stream issues.**

Discuss current safety concerns of the existing culvert/crossing? **Washouts, particularly underwater, are significant issues of driver safety. There is much thru-traffic. During storm events and power outages, emergency vehicles which would typically use this road are not able to get through.**

In how many years from now do you estimate the culvert/crossing would likely have a complete failure, a complete collapse, or total washout? **With more extreme storm events- at any time.**

X ☐ 1 year    ☐ 3 years    ☐ 5 years    ☐ 10 years    ☐ 15 years    ☐ 20 years    ☐ 25 years

Has the culvert/crossing been inspected by the Maine Department of Transportation? If so, what is the date of the last inspection and condition classification by Maine DOT?

**Unknown whether DOT has inspected the culvert- doubtful.**

Discuss what sort of impacts would occur if the culvert/crossing were to fail? For instance, are there critical public services (fire or police station, hospital, school, public works facility) located on this road that would be cutoff or required to detour?

**There are no public services that would be completely cutoff, but emergency services would require lengthy detours: For Mutual Aid between Starks VFD and neighboring town of Industry's VFD to serve the area of West Mills village in Industry or Starks village in Starks, would be up to 10 miles. Mutual aid response with the Town of Anson to assist with some houses on the Sawyers Mills Road in Starks or on Rt 148 in Anson would be an additional 5 to 10 miles. Same with AMS Ambulance service from Anson. Picking up school children on this road can be very difficult and lengthy given the routes taken by the buses out of Farmington. RSU #9**

If the culvert/crossing fails would homes, businesses, or infrastructure be cut off or required to detour?

#Cut off:   0   year round homes

#Cut off:   0   seasonal homes

#Cut off:   0   businesses (list type and size)

#Cut off:   0   infrastructure (list type)

#Cut off:   0   other (list)

How many miles, and how many of each would be required to detour?

#  10  year round homes required to detour  10  miles

#  12  seasonal homes required to detour  10  miles

#   2  businesses (list type and size) required to detour  10  miles (Solar installation- 3 employees

#   0  infrastructure (list type) required to detour        miles

#        other (list) required to detour        miles

Private roads only: If the culvert or crossing is located on a private road and directly impacts a lake or pond, is public access to the lake or pond prohibited or highly restricted to foot access or carry in only? N/A

What is the annual maintenance fee per landowner per year for the private road? N/A



<b>V. Scoring Criteria for Proposed Culvert/Crossing Cost &amp; Budget Information (25 Points total):</b>																																		
Existing culvert/crossing material: Circle One (Plastic pipe, concrete pipe, corrugated metal pipe, concrete box culvert, stone/granite culvert, pipe arch, bridge, or Other type (describe):																																		
Length: <b>40 feet</b>	Diameter: <b>24" &amp; 24"</b>	Width: N/A	Height: N/A	Approximate Age: Unkn- Apprx 30 yrs																														
Proposed culvert/crossing material: Circle One (Plastic pipe, concrete pipe, corrugated metal pipe, concrete box culvert, stone/granite culvert, pipe arch, bridge, or Other type (describe): <b>Concrete arch</b>																																		
Length: 52 ft 58 ft total structure	Diameter: N/A	Width: 8 foot arch	Height: Varies	Amount Requested: \$45,000																														
Population of town, group or association funding project: 640		Total cost of project (including in kind costs): \$62,350																																
Discuss approximate funds spent on physical repairs within the last 10 years on the culvert/crossing (exclude normal maintenance costs such as painting). <b>\$4,000 avg per year in gravel, and use of town owned grader, trucks, front end loader by town road crew. Often work has had to be contracted out</b>																																		
What are the estimated construction costs for the culvert/crossing replacement? Include estimated items for mobilization of equipment, erosion control and stream diversion, existing culvert removal, installation of the new culvert, permanent stabilization, and engineering design costs. <table border="0"> <tr> <td>- Concrete arch (Dirigo)</td> <td>\$14,165;</td> <td>- Delivery</td> <td>\$1,200;</td> <td>- Engineering (Calderwood)</td> <td>\$5,000</td> </tr> <tr> <td>- Crushed rock--25 yds 1 1/2"</td> <td>\$500;</td> <td>- 50 yds 8" riprap</td> <td>\$1,500;</td> <td>- 100 yds reject material (Disp.)</td> <td>\$2,500</td> </tr> <tr> <td>- Gravel- 50 yds -3"</td> <td>\$750;</td> <td>- Gravel 50 yds -2"</td> <td>\$750;</td> <td>- Misc. equip't (pump,</td> <td></td> </tr> <tr> <td>- Excavator 10 days</td> <td>\$12,000;</td> <td>- Bulldozer 10 days</td> <td>\$7,000;</td> <td>compactor, etc.) 10 days</td> <td>\$5,000</td> </tr> <tr> <td>- Labor (two) 10 days</td> <td>\$5,000;</td> <td>- Trucks (two)</td> <td>\$7,000;</td> <td>-</td> <td></td> </tr> </table>					- Concrete arch (Dirigo)	\$14,165;	- Delivery	\$1,200;	- Engineering (Calderwood)	\$5,000	- Crushed rock--25 yds 1 1/2"	\$500;	- 50 yds 8" riprap	\$1,500;	- 100 yds reject material (Disp.)	\$2,500	- Gravel- 50 yds -3"	\$750;	- Gravel 50 yds -2"	\$750;	- Misc. equip't (pump,		- Excavator 10 days	\$12,000;	- Bulldozer 10 days	\$7,000;	compactor, etc.) 10 days	\$5,000	- Labor (two) 10 days	\$5,000;	- Trucks (two)	\$7,000;	-	
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Do you have engineered design plans and construction specifications for the replacement culvert/crossing? If yes, describe who designed the plans, and when the plans were completed. <b>Attached are plans provided by Dirigo Engineering earlier this year for their pre-fabricated, pre-engineered 8 foot concrete arches.</b> <b>The project would be undertaken in accordance with guidance provided by IF &amp; W and US FWS to avoid disruption of Brook Trout and other fishery's spawning. This would likely mean August. A coffer dam would be built on the upstream side and collected water would simply be pumped to the lower side so the entire project would be accomplished in the dry, and in accordance with best management practices. The Somerset County Conservation District has advised the Town on practices as well.</b>																																		
What is the estimated construction schedule for the proposed project? Include estimated start and completion dates, and include any time of year restrictions from state or federal permitting agencies. Do you have permits? Yes, No, or Application Submitted <b>The project should take no more than two weeks. We have been advised only a Maine state permit-by-rule is required, the application for which would be sent in a month prior to start. Maine DEP staff have visited the site. However, if a Corps of Engineers permit is required, we'll start that process immediately. Start/finish dates are currently planned for August, 2016</b>																																		
<b>VI. Environmental Scoring Criteria for Proposed Culvert/Crossing Information (50 Points total): (See Section V.B. on pages 10-11 for more detail.)</b>																																		
<b>Climate Resiliency (10 Points)</b> Explain how the new culvert/crossing has been sized appropriately for the watershed. Discuss any watershed studies or hydrology studies that have been conducted, if any. <b>A StreamStats report has been generated which shows a drainage area of 0.2 mi<sup>2</sup>, and peak flows of: 2 yr= 19.7 cfs; 5 yr= 36.2 cfs; 10 year= 49.8 cfs; 25 year= 70.1 cfs; 50 yr= 87.2 cfs; 100 yr= 106 cfs; 500 yr= 157 cfs.</b> <b>The 8 ft Dirigo arch alone has substantially greater throughput capacity than the two existing culverts. Because the arch will be elevated on side blocks in this application (see design), the throughput is that much greater.</b> <b>The two current 24" culverts have a nominal cross sectional area of 6.28 ft<sup>2</sup>. Without a footer at all, the 8 foot arch has a cross sectional area of 14.3 ft<sup>2</sup>. With the designed 12" footer, area goes to 20.7 ft<sup>2</sup>.</b>																																		

**With a single row of 2 ft abutment blocks under the footer, cross sectional area increases an additional 12.8 ft<sup>2</sup> to 33.5 ft<sup>2</sup>.**

Please describe what provisions for addressing climate resiliency were used/will be used in designing the replacement culvert/crossing. Will the design meet the 100 year flood criteria data, if not explain the rationale for not meeting this criteria. Discuss any watershed studies or hydrology studies that have been conducted, if any. **The arch design should easily meet the 100 year flow criteria (106 cfs). Nominally the 8 foot arch sitting upon the one foot footer and a two foot abutment block (33.5 ft<sup>2</sup>) would handle a 100 year event with water flowing at an average of 3 ft/sec.**

**Habitat (25 Points)** If the existing culvert/crossing was to be replaced, how much habitat (i.e., miles of stream, or acres of wetland habitat) would be opened up to fish passage and other aquatic life? **The drainage area is approximately .2 square miles. Bobby Van Riper of IF & W has briefly investigated the area upstream of the wetland seen in one of the photos and has found it to be valuable brook trout habitat (see his letter of November 2, 2015. Upstream of the road is a wetland which appears to have been constructed at some time in the distant past- (1960s or earlier?). Upstream of that wetland is a defined stream channel which Van Riper found to be 6 ft wide.**

List the type of fish, aquatic life, or wildlife affected by the project.

☒ Brook Trout    ☐ Brown Trout    ☐ Rainbow Trout    ☐ Landlocked Atlantic Salmon  
☐ Atlantic Salmon (present today)    ☐ Atlantic Salmon (potential modeled habitat)  
☐ Rainbow Smelt    ☐ Alewives    ☒ Other: "...a variety of aquatic organisms." Van Riper letter  
☐ American Eel    ☐ Sea-run Brook Trout    ☐ Sea-run Brown Trout

Has the presence of these fish been confirmed by Maine IF&W, Maine DMR, or US FWS? ☒ Yes  
☐ No

Please list agency confirming and the species they have identified:

See Van Riper letter. Also some discussion with Paul Christman of DMR about planting salmon eggs at some point in the future in parts of Lemon Stream.

**Is the existing habitat active spawning habitat today? If so, discuss. Yes, Bobby VanRiper of IF & W has done preliminary investigations and has determined Brook Trout are in fact spawning upstream of the culvert. See his letter.**

Is the culvert identified by the Maine Stream Habitat Viewer or by an Agency as a Barrier? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Barrier Identification #	Type of Barrier	Estimate how many months per year is Barrier a Full Barrier preventing any fish passage?
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Is the Culvert undersized? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Width of Culvert: <b>Two 24" currently</b>	Width of natural stream (not pool at culvert): <b>6 feet upstream</b>
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Is the new crossing/culvert 1.2 times the stream bed (bank full) width? If not, please explain the rationale for a smaller size. **Yes. 8 feet is more than 1.2 times the nominal 6 foot bank width of the upstream stream bed. The new system will consist of an arch mounted on one foot high concrete footer and a 2 foot abutment block at the upstream end, and (to maintain a level roadway) increasing the blocking underneath to being mounted on the footer plus two- 2 foot concrete abutment blocks at the downstream exit- see drawings. The water will flow on an inclined streambed of riprap and crushed rock so as to bring the water level down the 2 to 3 feet from the current upstream side of the road to the level of the current plunge pool.**

How many miles would open upstream to the next Barrier? <b>There are no barriers upstream of this culvert. It is entirely spawning habitat.</b>	How many miles downstream to the next Barrier? <b>Three miles below this culvert, and after the tributary has entered Lemon Stream there is an 18<sup>th</sup> C. dam in Starks village. There has been recent discussion about either taking out this dam or constructing fish passage around it. There has been some discussion with Paul Christman of DMR about planting Atlantic Salmon eggs in some parts of Lemon Stream.</b>
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Connectivity: Describe significant adjacent fisheries or habitats such as heritage ponds impacted by this project. Include distances from the project to these other areas.

Please provide other information about the proposed project that you believe is important:


APPENDIX 2

**State of Maine**  
**Department of Environmental Protection**  
*Bureau of Land and Water Quality*  
**DEBARMENT, PERFORMANCE and NON-COLLUSION CERTIFICATION**  
**RFP# 201601017**  
**2016 Grants for Stream Crossing Public Infrastructure Improvements**

*By signing this document I certify to the best of my knowledge and belief that the aforementioned organization, its principals, and any subcontractors named in this proposal:*

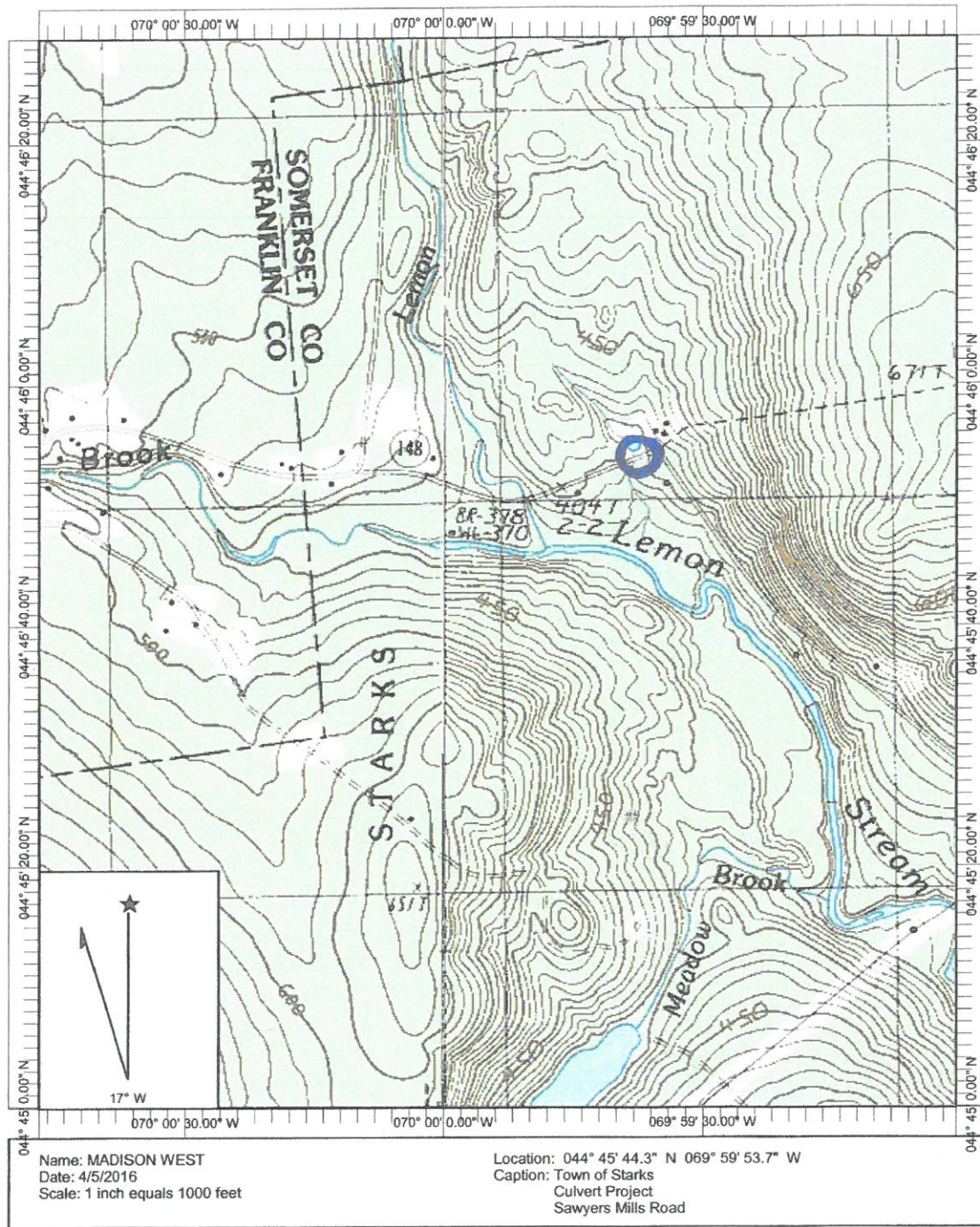
- a. Are not presently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from bidding or working on contracts issued by any governmental agency.*
- b. Have not within three years of submitting the proposal for this contract been convicted of or had a civil judgment rendered against them for:*
  - i. fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government transaction or contract.*
  - ii. violating Federal or State antitrust statutes or committing embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;*
  - iii. are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or Local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and*
  - iv. have not within a three (3) year period preceding this proposal had one or more federal, state or local government transactions terminated for cause or default.*
- c. Have not entered into a prior understanding, agreement, or connection with any corporation, firm, or person submitting a response for the same materials, supplies, equipment, or services and this proposal is in all respects fair and without collusion or fraud. The above mentioned entities understand and agree that collusive bidding is a violation of state and federal law and can result in fines, prison sentences, and civil damage awards.*

**Failure to provide this certification may result in the disqualification of the Bidder's proposal, at the discretion of the Department.**

Name: Ernest W. Hilton	Title: Selectman
Authorized Signature: 	Date: April 5, 2016



## Project Location





## Project Location



Sawyers Mills Road (gray)

Culvert location (red box)

Lemon Stream (bottom of picture)



Culverts during spring runoff. Note the 2 to 3 foot drop into the plunge pool.



Looking into the upstream wetland during spring 2016 runoff. Water exiting wetland through a breach through an old apparent berm.



Upside ditch carrying diverted /excess spring runoff down along road ditch to floodprone area. Water exit from wetland is above, culvert entrances are below.





PAUL R. LEPAGE  
GOVERNOR

STATE OF MAINE  
DEPARTMENT OF  
INLAND FISHERIES & WILDLIFE  
284 STATE STREET  
41 STATE HOUSE STATION  
AUGUSTA ME 04333-0041

CHANDLER E. WOODCOCK  
COMMISSIONER

November 2, 2015

Selectmen, Town of Starks:  
Paul Frederic  
Ernie Hilton  
Joe Hayden

RE: Replacement of structurally deficient culverts on an Unnamed Tributary to Lemon Stream, Starks.

Dear Paul, Ernie, and Joe,

I am writing to voice the Maine Department of Inland Fisheries and Wildlife's (MDIFW) support for the town of Starks replacement of two obsolete culverts on Sawyer's Mills Road. The culverts carry an unnamed tributary to Lemon Stream under Sawyer's Mills Road, approximately 0.5 miles east of its junction with State Route 148.

In 2013, regional staff from this Department surveyed Lemon Stream and confirmed the presence of wild, self-sustaining brook trout in both Lemon Stream and the subject tributary. Environmental conditions present within the tributary are capable of supporting all life stages of trout during all seasons, but currently limit access to the stream channel above the structure for all fish. In short, the culverts are effective barriers to upstream movements of not only fish, but also for a variety of aquatic organisms.

In addition to fragmenting stream habitat, the culverts are undersized, have a physical drop of 2 vertical feet at their outlets and are in poor structural condition. This combination of conditions alters stream function in that during high intensity runoff events, the culverts backwater and the resulting stormwater floods Sawyer's Mills Road, overflowing the ditch line well to the west of the stream channel crossing. The water that passes through the pipes during similar events has scoured significant pools in the stream channel immediately below the outlet of the pipes, negating any pool formation in the reach downstream of the outlet.

Replacement of these two pipes will result in several positive outcomes. From an ecological perspective, stream organisms could access habitat upstream of the pipes. Stream processes such as movements of materials and retention of discharge within the natural streambed would be restored. Chronic road maintenance issues such as road closures to flooding and subsequent site repairs would be minimized.

In closing, I would reiterate MDIFW's support for replacing these culverts. If our Regional Headquarters can be of additional assistance with this project, please don't hesitate to contact us.

Sincerely,

Robert Van Riper  
Regional Fisheries Biologist  
Rangeley Lakes Region





## Somerset County

Soil & Water Conservation District  
70 East Madison Road Skowhegan ME 04976  
Phone (207) 474-8324 Fax (207) 474-0638  
[info@somersetswcd.org](mailto:info@somersetswcd.org) [www.somersetswcd.org](http://www.somersetswcd.org)

October 28, 2015

Ernie,

The Somerset County Soil and Water Conservation District fully supports the Town of Starks in its grant application for the replacement of culverts on Sawyers Mill Road where an unnamed tributary to Lemon Stream crosses the road approximately ½ mile East of the intersection with Rt. 148. I had the opportunity to perform a site inspection of this culvert crossing on September 4, 2015 along with Ben Nauman, Fisheries Biologist with USDA-Natural Resources Conservation Service.

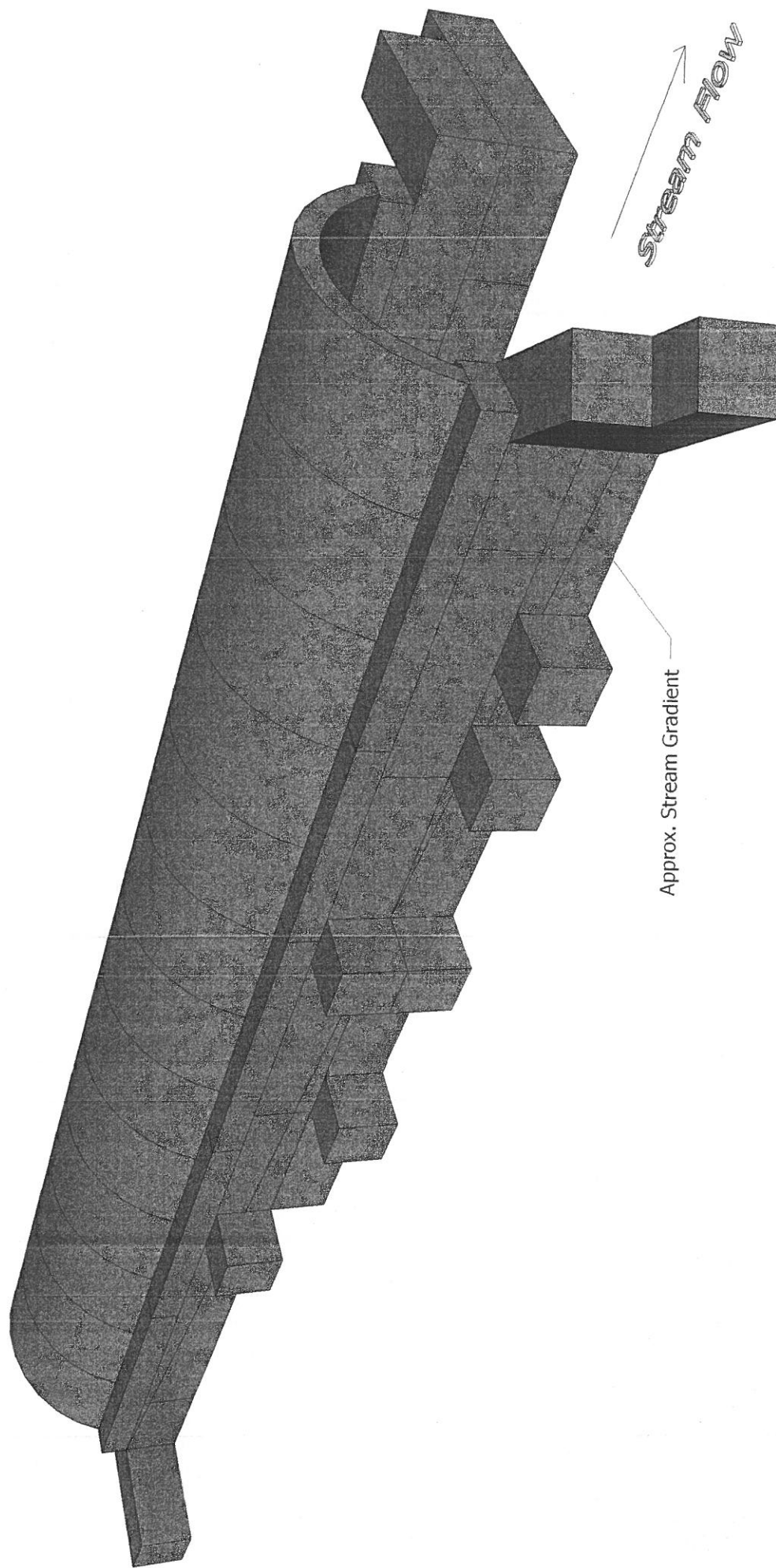
The following observations were made:

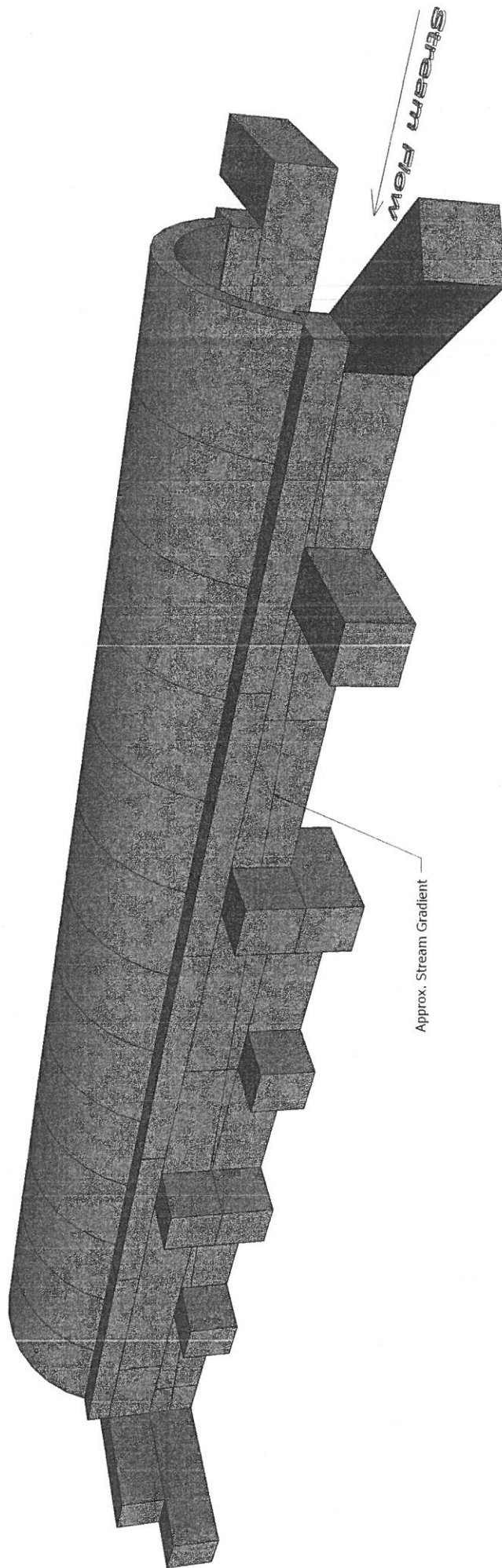
- The tributary flows perpendicular to the Sawyers Mill Road then is forced to make a 90 degree turn (West) to flow alongside the road before making another 90 degree turn (South) where it enters one of two culverts that takes the streamflow under the road. Due to these man-made 90 degree turns in the streambed during high flow events water flows over the road at both bends.
- The culverts are perched (2ft minimum above stream bed) on the downstream side of the road which prevents all upstream movement of aquatic organisms.
- The current culverts are undersized and incapable of handling high flow events.
- Severe scouring of the streambed occurs downstream of the culverts.
- Brook trout (adult and young-of-year) were observed both upstream and downstream of the culverts.

Based upon observations from the field visit, replacing the existing culverts with an appropriately sized structure, siting the structure to minimize non-natural streambed directional changes, and properly imbedding the structure in the streambed to allow for aquatic organism passage at all flow levels, will provide for positive benefits to the road integrity, conveyance of high flows, and protection of natural resources.

Best regards,

Joe Dembeck, Executive Director







Looking Upstream

